

REMARKS

The Office Action dated November 12, 2009 has been reviewed and carefully considered. The Examiner's indication that claim 15 recites allowable subject matter is appreciated.

Claims 1-10, 16, 18-22, and 25-27 are canceled without prejudice, claims 11, 12 and 17 having previously been canceled without prejudice. Claim 24 is amended. Claims 13 and 14 are redrafted into independent form, and claim 14 is further amended. Claims 28-42 are added. Claims 13-15, 23, 24, and 28-42 are pending, the independent claims being 13, 14, 23, 28 and 35-37.

Reconsideration of the application, as amended and in view of the following remarks, is respectfully requested.

Claim Rejections

Claims 2 and 19 stand rejected under 35 U.S.C. 112, second paragraph, as indefinite.

Claims 2 and 19 are canceled. Accordingly, the rejection as to claims 2 and 19 are moot.

Claims 1-6, 14, 16, 18, 20-22, 25 and 26 stand rejected under 35 U.S.C. 103(a) as obvious over U.S. Patent No. 4,412,029 to Kehr et al. ("Kehr").

Claims 1-6, 16, 18, 20-22, 25 and 26 are canceled and the rejection of them under the instant ground is therefore moot.

Claim 14, as it stood when the instant Office Action issued, including the limitations of its parent claim 20, recited:

A method for providing insulation to prevent voltage flashover, comprising:

forming a composite electrical insulating material by distributing within a first material a second material to thereby increase electrical conductivity for, by dissipation of charge, preventing said voltage flashover, said composite electrical insulating material having a specific resistance greater than 10^{10} Ωcm and less than 10^{12} Ωcm ; and

creating a hybrid insulating material by executing said forming for respective constituents of said hybrid insulating material.

Claim 14 has now been amended into independent form to recite:

A method for providing hybrid electrical insulating material to prevent voltage flashover comprising:

combining ones of formed composite electrical insulating materials to create said hybrid electrical insulating material, the forming of a composite electrical insulating material comprising distributing within a first material a second material to thereby increase electrical conductivity for, by dissipation of charge, preventing said voltage flashover, said composite electrical insulating material having a specific resistance greater than 10^{10} Ωcm and less than 10^{12} Ωcm .

Hybrid insulating material is discussed in the specification (e.g., page 2, lines 7-17, 28-32; page 3, lines 12-20; page 4, lines 8-10; page 8, lines 16-21; and page 9, lines 1-6).

Item 17 of the Office Action lists claim 14 as among the claims rejected.

Yet, the Office Action is apparently completely silent as to the reasoning behind the rejection of claim 14.

Item 17 also mentions the formerly cited reference U.S. Patent No. 6,541,534 to Allen et al. ("Allen").

However, neither Kehr nor Allen seems to mention or suggest a "hybrid" electrical insulating material as in claim 14.

During examination, the claims must be interpreted as broadly as their terms reasonably allow. *In re American Academy of Science Tech Center*, 367 F.3d 1359, 1369, 70 USPQ2d 1827, 1834 (Fed. Cir. 2004) (The USPTO uses a different standard for construing claims than that used by district courts; during examination the USPTO must give claims their broadest reasonable interpretation >in light of the specification<.). This means that the words of the claim must be given their plain meaning unless **>the plain meaning is inconsistent with< the specification. *In re Zletz*, 893 F.2d 319, 321, 13 USPQ2d 1320, 1322 (Fed. Cir. 1989) (discussed below); *Chef America, Inc. v. Lamb-Weston, Inc.*, 358 F.3d 1371, 1372, 69 USPQ2d 1857 (Fed. Cir. 2004) (Ordinary, simple English words whose meaning is clear and unquestionable, absent any indication that their use in a particular context changes their meaning, are construed to mean exactly what they say. Thus, "heating the resulting batter-coated dough to a temperature in the range of about 400°F to 850°F" required heating the dough, rather than the air inside an oven, to the specified temperature.) MPEP § 2111.01(I).

"PLAIN MEANING" REFERS TO THE ORDINARY AND CUSTOMARY MEANING GIVEN TO THE TERM BY THOSE OF ORDINARY SKILL IN THE ART

"[T]he ordinary and customary meaning of a claim term is the meaning that the term would have to a person of ordinary skill in the art in question at the time of the invention, i.e., as of the effective filing date of the patent application." *Phillips v. AWH Corp.*, *415 F.3d 1303, 1313<, 75 USPQ2d 1321>, 1326< (Fed. Cir. 2005) (*en banc*). *Sunrize Roots Enter. Co. v. SRAM Corp.*, 336 F.3d 1298, 1302, 67 USPQ2d 1438, 1441 (Fed. Cir. 2003); *Brookhill-Wilk I, LLC v. Intuitive Surgical, Inc.*, 334 F.3d 1294, 1298 67 USPQ2d 1132, 1136 (Fed. Cir. 2003) ("In the absence of an express intent to impart a novel meaning to the claim terms, the words are presumed to take on the ordinary and customary meanings attributed to them by those of ordinary skill in the art.") MPEP § 2111.01(III).

The plain meaning of the term "hybrid" in claim 14, as amended or before amendment, is consistent with the specification.

The Examiner might, as set forth in the above-quoted MPEP passages, reconsider what one of ordinary skill in the art would have understood the phrase “hybrid” in claim 14 to mean. See Negle (EP 1176856A2)(or, equivalently, U.S. Patent No. 6,498,303) which was cited in the Information Disclosure Statement that accompanied the filing in the U.S. Patent Office of the instant patent application.

If the Examiner still contemplates upholding the rejection, the Examiner might then further consider expressing what the Examiner deems in the prior art to correspond to various terms in claim 14, *inter alia*, “hybrid electrical insulating material,” “ones,” and “formed composite electrical insulating materials.”

Applicant notes, too, that the restriction requirement to “solid” materials cannot properly be seen as restricting the scope of claim 14.

Applicant traverses any such erroneous interpretation by the Office Action.

In particular, the species claimed by Applicant are solid insulation, liquid insulation and hybrid insulation, with claim 14, for example, being representative of a combination and its former parent claim 20, for example, being representative of a subcombination.

As the Office Action acknowledges, Applicant previously elected, with traverse, solid insulation in response to a requirement to elect between solid and liquid insulation.

Although the record does not indicate that claim 14 has been excluded from examination, but that it, to the contrary, has been examined, and thrice rejected in the current Office Action, Applicant notes that restriction of claim 14 from examination would have been erroneous.

MPEP 806.05(c) states:

To support a requirement for restriction between combination and subcombination inventions, both two-way distinctness and reasons for insisting on restriction are necessary, i.e., there would be a **serious search burden* if restriction were not required (underlining added for emphasis).

MPEP § 806.05(d) provides:

To support a restriction requirement where applicant separately claims plural subcombinations usable together in a single combination and claims a combination that requires the particulars of at least one of said subcombinations, both two-way distinctness and reasons for insisting on restriction are necessary. Each subcombination is distinct from the combination as claimed if:

(A) the combination does not require the particulars of the subcombination as claimed for patentability (e.g., to show novelty and unobviousness), and
(B) the subcombination can be shown to have utility either by itself or in another materially different combination.

Former claims 18 and 9 were “plural subcombinations” and former claim 1 was a “single combination.” See MPEP § 806.05(a).

Claim 14, as presented for examination in the just-previous reply and as it is worded now, is a “combination that requires the particulars of” former claim 20 or equivalently former claim 18.

The idea of combining liquid and solid electrical insulating material to form hybrid electrical insulating material was known.

Accordingly, the “combination,” i.e., claim 14, required and requires the “particulars of the subcombination as claimed,” which is former claim 18 or 20, to be patentable.

Specifically then, restriction between the hybrid electrical insulation species and the solid electrical insulation species (i.e., Species I, the elected species) would not have been proper and would not now be proper. See MPEP § 806.05(d) quotation as shown above.

Moreover, such a restriction between the combination and subcombination would still not be proper for the same reason, and, in addition, because claim 14 has already been examined.

Thus, any construction of the word "hybrid" in claim 14 by the Office Action that is limited based the restriction/election, as described hereinabove, would not have been proper and is not now proper.

Applicant further notes that even such a limited, and erroneous, construction would not, in Applicant's opinion, even come close to bringing the applied reference(s) within claim 14.

Once again, more than a mere conclusory statement just that claim 14 is rejected under Section 103 is needed.

The Board of Patent Appeals and Interferences (BPAI) is repeatedly citing *KSR Int'l v. Teleflex, Inc.*, 127 S. Ct. 1727, 82 USPQ2d 1385 (2007) as it, in turn, cited *In re Kahn*.

"[R]ejections on obviousness grounds cannot be sustained by mere conclusory statements; instead, there must be some articulated reasoning with some rational underpinning to support the legal conclusion of obviousness." (*In re Kahn*, 441 F. 3d 977,

988 (CA Fed. 2006) cited with approval in KSR, 550 U.S. at ___, 82 USPQ2d at 1396)
MPEP 2141(III), fifth paragraph, next-to-last sentence.

The Office Action fails to provide articulated reasoning for its suggestion of obviousness.

For at least the foregoing reasons, the rejection of claim 14 lacks merit.

Reconsideration and withdrawal of the rejection is respectfully requested.

Claims 7 and 8 stand rejected under 35 U.S.C. 103(a) as unpatentable over Kehr in view of U.S. Patent No. 3,709,835 to Forster.

Claims 7 and 8 are canceled without prejudice, their subject matter being carried over into new dependent claims 33 and 34.

Accordingly, although the instant rejection is moot as to claims 7 and 8, analysis of the rejection appears immediately below for comparison with new claims 33 and 34.

Claim 7 recited:

An electrical insulating material in solid form comprising: a first material; and a second material comprising an electrically conductive material, said second material being distributed within the first material to thereby increase electrical conductivity for, by dissipation of charge, preventing voltage flashover, said insulating material having a specific resistance greater than $10^{10} \Omega\text{cm}$ and less than $10^{12} \Omega\text{cm}$, wherein said second material coats a further material comprising particles which, in terms of their shape, size, material, coating, filling, distribution, and fraction with respect said insulating material, are, as selected and dimensioned, such as to cause said insulating material to have said specific resistance, wherein said particles have a coating consisting of a material that improves adhesion between said particles and a basic substance.

Kehr discloses embodiments that use carbon black particles, and an embodiment that uses "vacuum metalized microspheres."

The Office Action mentions both types of embodiments under this ground of rejection, but falls short of specifying which of the two types is being modified in view of Forster.

The Forster "coupling agent" "serves to bring about a better bond between metal particles and the polymer matrix" (Forster, col. 3, lines 60-62).

Since carbon black is not a metal, there does not seem to be any indication that the Forster "coupling agent" is effective, or otherwise appropriate, for bonding carbon black to a polymer matrix.

Thus, with reference to Kehr once again, it would appear that perhaps it is the "vacuum metalized microspheres" embodiment that is being modified.

Lending credence to this view is the fact that the Kehr "vacuum metalized microspheres" embodiment is seemingly the only one of Kehr in which a "material coats a further material" as in claim 7 of the present invention.

In addition, the Kehr carbon black particles have no "filling" as in claim 7.

So, the Office Action presumably intends to modify, in view of Forster, the "vacuum metalized microspheres" embodiment of Kehr rather than any Kehr carbon black embodiment.

The Office Action cites to Kehr FIG. 6 as evidence that the specific resistance range of claim 7 is met, (see Office Action, item 18), but FIG. 6, like each figure in Kehr, relates to carbon black (Kehr, col. 7, line 57-58: "carbon black") particles.

Therefore, the evidence the Office Action cites for coming within the specific resistance range of claim 7 does not pertain to the "vacuum metalized microspheres"

embodiment of Kehr, which is the only embodiment of Kehr not already disqualified according to the reasons stated hereinabove.

However, as set forth immediately, below, this Kehr embodiment, i.e., the “vacuum metalized microspheres” embodiment, likewise fails to meet claim 7.

More specifically, as to the “vacuum metalized microspheres” embodiment, Kehr does not expressly say whether the specific resistance range of claim 7 is met.

In particular, Kehr refers to a minimum specific resistance (col. 5, lines 1-6), but this merely sets a minimum on the specific resistances of the set of Kehr embodiments, that set including both metalized and carbon black embodiments.

Kehr seemingly offers no further guidance on what the specific resistance of the “vacuum metalized microspheres” embodiment is.

A reference previously applied in rejection offers further insight into the Kehr “vacuum metalized microspheres” embodiment.

U.S. Patent No. 5,756,936 to Viebranz et al. (“Viebranz”) cited in the previous Office Action has a common inventor and common assignee with Kehr.

Viebranz, like Kehr, is directed to a polymeric, e.g., silicone rubber (compare Kehr, col. 1, lines 10-11 to Viebranz, col. 3, lines 57-63), sleeve to be placed over a connection between AC cables. Compare Viebranz, col. 1, lines 19-21 and col. 2, line 65 – col. 3, line 2 to Kehr, col. 1, lines 6-8(9), 26 and col. 2, line 42).

As discussed in the previous reply, the Viebranz composition containing “glass bubbles” “coated with aluminum” (see col. 6, line 13; compare to Kehr, col. 5, lines 38:

"aluminum", 41: "vacuum metalized microspheres", 42: "glass spheroids") does not constitute a disclosure within the specific resistance range of the present claims.

In particular and as discussed in the previous reply, Viebranz discloses a number of examples of its polymeric composition, i.e., a sleeve inner layer 14. In one of the examples, the layer 14 has a specific resistance of at least $6 \times 10^{13} \Omega \text{cm}$, and, in all other examples the specific resistance is higher (col. 6, lines 16-19(20), 46, 53). Even the lowest specific resistance disclosed in Viebranz, $6 \times 10^{13} \Omega \text{cm}$, exceeds the upper limit of the claimed range of the present claim 7 by a factor of 60.

If the Office Action contemplates citing to *Titanium Metals*, as the previous Office Action did with respect to Viebranz, it would be in an attempt to suggest that one of ordinary skill in the art would have expected Viebranz, or in effect Kehr, to have the "same" beneficial AC "field controlling effect" (col. 3, line 15) if the polymeric composition ("vacuum metalized microspheres" embodiment in the case of Kehr) were to have been modified for a specific resistance within the range of the present claim 7.

However, one skilled in the art would not have expected the Viebranz or Kehr polymeric composition with a specific resistance in the claimed range to have the same effect as if it had a specific resistance mentioned in Viebranz. For example, attempting to achieve the claimed range by increasing the thickness of the aluminum coating would have caused the layer 14 to have less dielectric strength, which would run counter to the goal of Viebranz and of Kehr. Compare Viebranz, col. 8, lines 13-16; col. 3, lines 8(9)-11(12)) to Kehr, col. 5, lines 57-59. On the other hand, increasing the volume fraction of aluminum coated bubbles would have failed to achieve the present claimed range, as

evidenced by the above-noted example where specific resistance remained constant (Viebranz, col. 6, line 17: "constant").

Citation to *Titanium Metals* would further fail to have relevance here, at least because the Viebranz examples entail specific resistance of considerably greater magnitudes (col. 6, lines 18, 46 and 53). They are within a factor of 10 of each other; yet, the smallest of them exceeds the upper limit of the claimed range by a factor of 60.

Such a disparity in magnitude between the claimed and prior art ranges stands in contrast to that of the *Titanium Metals* holding the previous Office Action cited, namely:

Court held as proper a rejection of a claim directed to an alloy of "having 0.8% nickel, 0.3% molybdenum, up to 0.1% iron, balance titanium" as obvious over a reference disclosing alloys of 0.75% nickel, 0.25% molybdenum, balance titanium and 0.94% nickel, 0.31% molybdenum, balance titanium.

The factor of at least 60 above the claimed range implies that the claimed range and the prior art range are not close to each other.

For at least all of the above reasons, Office Action reliance on *Titanium Metals* would fail to make a *prima facie* case of obviousness.

For at least all of the foregoing reasons the invention as recited in claim 7 distinguishes patentably over the proposed Kehr/Forster combination.

As to claim 8, what the Office Action likens in Forster to the "adhesion promoter" of claim 8 (Forster, col. 3, lines 65-69) pertains, as in the immediately above discussion related to claim 7, to bonding with metal particles. Also, the language of claim 7, (i.e., "material coats a further material," "filling," and the specific resistance range), that, as discussed immediately above, distinguishes over the applied references is recited

identically in claim 8. Accordingly, analogous reasoning applies for deeming claim 8 likewise patentable over the applied combination of references.

Claims 13, 19, 23, 24 and 27 stand rejected under 35 U.S.C. as unpatentable over Kehr in view of International Patent Publication WO 96/08020 to Backa et al. ("Backa").

Claims 19 and 27 are canceled. The rejection as to claims 19 and 27 is therefore moot.

Regarding claim 13, it recites:

A voltage generator in which an electrical insulating material is implemented for electrical insulation, said electrical insulating material comprising: a first material; and a second material distributed within the first material to thereby increase electrical conductivity for, by dissipation of charge, preventing voltage flashover, said insulating material having a specific resistance greater than $10^{10} \Omega\text{cm}$ and less than $10^{12} \Omega\text{cm}$.

Item 19 of the Office Action acknowledges that Kehr does not teach "the use of insulation material in a high voltage generator," but suggests that Backa makes up the difference.

Kehr relates to a "polymeric" (col. 1, lines 8-10) "shifted on" (col. 4, line 22; "shifted on") hollow, cylindrical sleeve that joins an end of an off-the-shelf insulated electrical cable to 1) an end of another off-the-shelf insulated electrical cable or to 2) a terminal.

The Kehr sleeve is designed to afford electrical stress control (col. 3, line 5: "stress control") at the joint.

Backa relates to "cellulose-based fibre-containing insulation" (page 1, line 9) and discloses that "high-voltage cables, transformers, generators, etc." include bodies that

carry electricity and commonly include polymeric electrical insulation between and/or around the bodies (page 1, lines 13-18).

On the one hand, an off-the-shelf insulated electrical cable might be joined to the lead wire or external terminal of an off-the-shelf voltage generator.

It is, however, unclear what the Kehr and Backa references, alone or in combination, have to do with:

A voltage generator in which an electrical insulating material is implemented for electrical insulation, said electrical insulating material comprising: a first material; and a second material distributed within the first material to thereby increase electrical conductivity for, by dissipation of charge, preventing voltage flashover, said insulating material having a specific resistance greater than $10^{10} \Omega\text{cm}$ and less than $10^{12} \Omega\text{cm}$.

at least because there is no disclosure or suggestion of an off-the-shelf insulated electrical cable being joined, by a shift-on, hollow, cylindrical sleeve, within an interior of a voltage generator.

Applicant does not see any motivation or suggestion for the Kehr cable joint sleeve material to have been implemented "in" a voltage generator.

The Office Action seems to suggest that because voltage generators often have polymeric insulation that this, in and of itself, would have suggested to one of ordinary skill in the art that the Kehr cable joint sleeve material be implemented in a voltage generator.

To reach a proper determination under 35 U.S.C. 103, the examiner must step backward in time and into the shoes worn by the hypothetical "person of ordinary skill in the art" when the invention was unknown and just before it was made. In view of all factual information, the examiner must then make a determination whether the claimed invention "as a whole" would have been obvious at that time to that person. Knowledge of

applicant's disclosure must be put aside in reaching this determination, yet kept in mind in order to determine the "differences," conduct the search and evaluate the "subject matter as a whole" of the invention. The tendency to resort to "hindsight" based upon applicant's disclosure is often difficult to avoid due to the very nature of the examination process. However, impermissible hindsight must be avoided and the legal conclusion must be reached on the basis of the facts gleaned from the prior art. MPEP § 2141, second paragraph.

The Examiner has used impermissible hindsight based on the disclosure in the instant specification and has failed to make a *prima facie* case of obviousness.

For at least the foregoing reasons, it would not have been obvious to modify Kehr in view of Backa in a manner that comes within claim 13 which recites:

A voltage generator in which an electrical insulating material is implemented for electrical insulation, said electrical insulating material comprising: a first material; and a second material distributed within the first material to thereby increase electrical conductivity for, by dissipation of charge, preventing voltage flashover, said insulating material having a specific resistance greater than $10^{10} \Omega\text{cm}$ and less than $10^{12} \Omega\text{cm}$.

Reconsideration and withdrawal of the rejection is respectfully requested.

As to claim 23, it recites, "electrical insulating material for a voltage generator . . . said insulating material being shaped for implementation within an interior of said generator to provide electrical insulation between components of said generator."

Kehr relates to a "polymeric" (col. 1, lines 8-10) "shifted on" (col. 4, line 22: "shifted on") hollow, cylindrical sleeve that joins an end of an off-the-shelf insulated electrical cable to 1) an end of another off-the-shelf insulated electrical cable or to 2) a terminal.

The sleeve is designed to afford electrical stress control (col. 3, line 5: “stress control”) at the joint.

Backa relates to “cellulose-based fibre-containing insulation” (page 1, line 9) and discloses that “high-voltage cables, transformers, generators, etc.” include bodies that carry electricity and commonly include polymeric electrical insulation between and/or around the bodies (page 1, lines 13-18).

On the one hand, an off-the-shelf insulated electrical cable might be joined to the lead wire or external terminal of an off-the-shelf voltage generator.

It is, however, unclear what the Kehr and Backa references, alone or in combination, have to do with “electrical insulating material for a voltage generator . . . said insulating material being shaped for implementation within an interior of said generator to provide electrical insulation between components of said generator,” at least because there is no disclosure or suggestion of 1) an off-the-shelf insulated electrical cable being joined, by a shift-on, hollow, cylindrical sleeve, within an interior of a voltage generator or 2) in what sense the shifted-on, hollow, cylindrical sleeve is “shaped for implementation within” the interior of said voltage generator.

Applicant does not see any motivation or suggestion for the Kehr cable joint sleeve material to have been implemented “in” a voltage generator, much less for it to have been “shaped for implementation within an interior of said generator to provide electrical insulation between components of said generator.”

The Examiner has, as discussed hereinabove in connection with claim 13, used impermissible hindsight based on the disclosure in the instant specification and has failed to make a *prima facie* case.

For at least the foregoing reasons, it would not have been obvious to modify Kehr in view of Backa in a manner that comes within claim 23.

Reconsideration and withdrawal of the rejection is respectfully requested.

As to claim 24, its amendment finds support in the specification (e.g., page 7, lines 5-8; page 9, lines 1-6; and EP 1 176 856 (or equivalently US 6,498,303, in particular col. 4, lines 4-22) which has been incorporated by reference into the present specification).

Claim 24 depends from and includes all of the limitations of base claim 23, and is deemed to be patentable over the applied references for at least the same reasons given above with regard to the base claim.

In addition, claim 24, as amended, recites, "said generator being operable at a continuous power of 15 kW with mixed loading that includes a direct current voltage."

Backa teaches away from high voltage direct current applications using polymeric insulation (such as the Kehr insulation), because resistivity of the insulation may vary and therefore adversely affect field distribution. See Backa, page 1, lines 30-37.

For this reason too, the rejection is invalid as to claim 24.

Reconsideration and withdrawal of the rejection is respectfully requested.

Claims 1-4, 14, 16, 18, 20, 21 and 25 stand rejected under 35 U.S.C. 103(a) as obvious over U.S. Patent No. 5,232,775 to Chamberlain et al. ("Chamberlain").

Claims 1-4, 16, 18, 20, 21 and 25 are canceled. The rejection as to these claims is accordingly moot.

As to claim 14, item 20 of the Office Action lists claim 14 as among the claims rejected.

Yet, the Office Action is completely silent as to the reasoning behind the rejection of claim 14.

The remarks above regarding the rejection of claim 14 based on Kehr apply here equally with respect to Chamberlain.

For at least the foregoing reasons, the rejection of claim 14 lacks merit.

Reconsideration and withdrawal of the rejection is respectfully requested.

Claims 7 and 8 stand rejected under 35 U.S.C. 103(a) as unpatentable over Chamberlain in view of Forster.

Claims 7 and 8 are canceled without prejudice, their subject matter being carried over into new dependent claims 33 and 34.

Accordingly, although the instant rejection is moot as to claims 7 and 8, analysis of the rejection is retained immediately below for comparison with new claims 33 and 34.

Claim 7 recited, "... said particles have a coating consisting of a material that improves adhesion between said particles and a basic substance."

The basic substance in Forster, and in Chamberlain, is a polymer matrix.

As mentioned in connection with the previous ground of rejection of claim 7, addressed above, the Forster "coupling agent" "serves to bring about a better bond between metal particles and the polymer matrix" (col. 3, lines 58(59)-(61)62)).

Chamberlain, on the other hand, teaches away from the use of “metalized” (col. 1, lines 41-50; col. 2, lines 1-8) or metal coated (col. 2, lines 8-10) particles in creating polymeric composites (col. 1, line 8(9)). See also col. 2, lines 51-54; col. 6, lines 13-16, 31-33, 46-47, 56-57; col. 7, lines 3-4, 18-19, 37-38. Accordingly, there is no indication that the Forster “coupling agent” would adequately adhere the Chamberlain particles to the Chamberlain basic substance.

For at least these reasons, it is unclear to Applicant what reason or motivation would have existed for the proposed combination of references, or how such combination could properly be considered to suggest, disclose or feature the present invention as recited in claim 7.

Claim 8 recited, “. . . said particles are embedded in a basic substance to which there is added an adhesion promoter for improving adhesion between said particles and the basic substance.”

Forster discusses adding the coupling agent to the polymer matrix “to bring about a better bond between metal particles and the polymer matrix” (col. 3, lines 65(66)-69).

The same reasoning applied immediately above to claim 7 applies to claim 8.

It is accordingly unclear to Applicant what reason or motivation would have existed for the proposed combination of references, or how such combination could properly be considered to suggest, disclose or feature the present invention as recited in claim 8.

As mentioned above at the beginning of this section regarding the ground of rejection for claims 7 and 8, claims 7 and 8 are canceled and the discussion of them in

this section is intended merely for comparison with new claims 33 and 34 which incorporate the subject matter of (former) claims 7 and 8, respectively.

Claims 1, 14, 16, 18, 20, 22 and 25 stand rejected under 35 U.S.C. 102(b) as anticipated by, or in the alternative, under 35 U.S.C. 103(a) obvious over Forster.

Claims 1, 16, 18, 20, 22 and 25 are canceled. The rejection as to these claims is accordingly moot.

Item 22 of the Office Action lists claim 14 as among the claims rejected.

Yet, the Office Action is completely silent as to the reasoning behind the rejection of claim 14.

The remarks above regarding the rejection of claim 14 based on Kehr apply here equally with respect to Forster.

For at least the foregoing reasons, the rejection of claim 14 lacks merit.

Reconsideration and withdrawal of the rejection is respectfully requested.

Claims 13, 19, 23 and 27 stand rejected under 35 U.S.C. 103(a) as unpatentable over Forster in view of Backa.

Claims 19 and 27 are canceled. Thus, the rejection as to claims 19 and 27 is moot.

Regarding claim 13, it recites:

A voltage generator in which an electrical insulating material is implemented for electrical insulation, said electrical insulating material comprising: a first material; and a second material distributed within the first material to thereby increase electrical conductivity for, by dissipation of charge, preventing voltage flashover, said insulating material having a specific resistance greater than $10^{10} \Omega\text{cm}$ and less than $10^{12} \Omega\text{cm}$.

Item 23 of the Office Action acknowledges that Forster does not teach “the use of insulation material in a high voltage generator,” but suggests that Backa makes up the difference.

Forster relates to a “polymeric” (col. 2, lines 1: “polymer”) hollow, cylindrical sleeve (col. 1, lines 70-71: “high voltage line splices”; col. 2, line 14) that joins an end of an off-the-shelf insulated electrical cable to 1) an end of another off-the-shelf insulated electrical cable or to 2) a terminal.

The Forster sleeve is designed to afford electrical stress control (col. 2, lines 43-47) at the joint.

Backa relates to “cellulose-based fibre-containing insulation” (page 1, line 9) and discloses that “high-voltage cables, transformers, generators, etc.” include bodies that carry electricity and commonly include polymeric electrical insulation between and/or around the bodies (page 1, lines 13-18).

On the one hand, an off-the-shelf insulated electrical cable might be joined to the lead wire or external terminal of an off-the-shelf voltage generator.

It is, however, unclear what the Forster and Backa references, alone or in combination, have to do with:

A voltage generator in which an electrical insulating material is implemented for electrical insulation, said electrical insulating material comprising: a first material; and a second material distributed within the first material to thereby increase electrical conductivity for, by dissipation of charge, preventing voltage flashover, said insulating material having a specific resistance greater than $10^{10} \Omega\text{cm}$ and less than $10^{12} \Omega\text{cm}$.

at least because there is no disclosure or suggestion of an off-the-shelf insulated electrical cable being joined, by a hollow, cylindrical sleeve, within an interior of a voltage generator.

Applicant does not see any motivation or suggestion for the Forster cable joint sleeve material to have been implemented “in” a voltage generator.

The Office Action seems to suggest that because voltage generators often have polymeric insulation that this, in and of itself, would have suggested to one of ordinary skill in the art that the Forster cable joint sleeve material be implemented in a voltage generator.

The Examiner has, as discussed hereinabove, used impermissible hindsight based on the disclosure in the instant specification and has failed to make a *prima facie* case.

For at least the foregoing reasons, it would not have been obvious to modify Forster in view of Backa in a manner that comes with claim 13 which recites:

A voltage generator in which an electrical insulating material is implemented for electrical insulation, said electrical insulating material comprising: a first material; and a second material distributed within the first material to thereby increase electrical conductivity for, by dissipation of charge, preventing voltage flashover, said insulating material having a specific resistance greater than 10^{10} Ωcm and less than 10^{12} Ωcm .

Reconsideration and withdrawal of the rejection is respectfully requested.

As to claim 23, it recites, “electrical insulating material for a voltage generator . . . said insulating material being shaped for implementation within an interior of said generator to provide electrical insulation between components of said generator.”

Forster relates to a “polymeric” (col. 2, lines 1: “polymer”) hollow, cylindrical sleeve (col. 1, lines 70-71: “high voltage line splices”; col. 2, line 14) that joins an end of

an off-the-shelf insulated electrical cable to 1) an end of another off-the-shelf insulated electrical cable or to 2) a terminal.

The Forster sleeve is designed to afford electrical stress control (col. 2, lines 43-47) at the joint.

Backa relates to “cellulose-based fibre-containing insulation” (page 1, line 9) and discloses that “high-voltage cables, transformers, generators, etc.” include bodies that carry electricity and commonly include polymeric electrical insulation between and/or around the bodies (page 1, lines 13-18).

On the one hand, an off-the-shelf insulated electrical cable might be joined to the lead wire or external terminal of an off-the-shelf voltage generator.

It is, however, unclear what the Forster and Backa references, alone or in combination, have to do with “electrical insulating material for a voltage generator . . . said insulating material being shaped for implementation within an interior of said generator to provide electrical insulation between components of said generator,” at least because there is no disclosure or suggestion of 1) an off-the-shelf insulated electrical cable being joined, by a shift-on, hollow, cylindrical sleeve, within an interior of a voltage generator or 2) in what sense the shifted-on, hollow, cylindrical sleeve is “shaped for implementation within” said voltage generator.

Applicant does not see any motivation or suggestion for the Forster cable joint sleeve material to have been implemented “in” a voltage generator, much less for it to have been “shaped for implementation within an interior of said generator to provide electrical insulation between components of said generator.”

The Office Action seems to suggest that because voltage generators often have polymeric insulation that this, in and of itself, would have suggested to one of ordinary skill in the art that the Forster cable joint sleeve material be implemented in a voltage generator.

The Examiner has, as discussed hereinabove in connection with the Kehr/Backa rejection, used impermissible hindsight based on the disclosure in the instant specification and has failed to make a *prima facie* case.

For at least the foregoing reasons, it would not have been obvious to modify Forster in view of Backa in a manner that comes within claim 23.

Reconsideration and withdrawal of the rejection is respectfully requested.

Allowable Subject Matter

The Examiner indicates, in item 24, that claim 15 would be allowable if redrafted into independent form to include all the limitations of the base claim and any intervening claim(s).

Applicant appreciates the Examiner's acknowledgment of patentable subject matter.

However, because claim 15 depends from claim 13, which has been shown to be patentable over the prior art of record, Applicant regards claim 15 to likewise be patentable for at least the same reasons set forth above in discussing claim 13.

New Claims

Support for new independent claim 28 is found in the specification (e.g., page 2, lines 3-8, 21-24; page 3, lines 3-11, 28-31; page 6, lines 6-20, 25-33; page 7, line 33 to page 8, line 3; and page 9, lines 13-16).

As to claim 28, the prior art of record, alone or in combination, fails to disclose, suggest or feature at least the claim 28 aspect, “[a]n electrical insulating material comprising: a first material; and a second material comprising at least one of a metal and an electrically conductive mineral, said second material coating a further material comprising particles, . . . said insulating material having a specific resistance greater than $10^{10} \Omega\text{cm}$ and less than $10^{12} \Omega\text{cm}$.”

Support for new dependent claim 29 is found in the specification (e.g., page 6, lines 25-27).

Support for new dependent claim 30 is found in the specification (e.g., page 4, lines 20-21).

Support for new claim dependent 31 is found in the specification (e.g., page 4, lines 27-32 and page 6, lines 3-6).

Support for new claim dependent 32 is found in the specification (e.g., page 4, lines 33-34).

Dependent claims 33 and 34 are based on, and find support in common with, now- former claims 7 and 8.

Claims 33 and 34 are deemed to distinguish over the prior art of record for at the least the same reasons set forth above with regard to base claim 28.

In addition, as to the further merits of claims 33 and 34 based on their particular provisions, the discussion above with regard to the rejections of claim 7 and 8 applies to claims 33 and 34.

Support for new independent claim 35 is found in the specification (e.g., page 3, lines 3-11, 28-31; page 4, lines 20-21; page 6, lines 6-20, 25-33; page 7, line 33 to page 8, line 3).

As to claim 35, the prior art of record, alone or in combination, fails to disclose, suggest or feature at least the claim 35 aspect, "[a]n electrical insulating material comprising: a polymer having a dielectric constant greater than 3 and less than 4; and a second material comprising at least one of a metal and an electrically conductive mineral, said second material coating a further material comprising particles, and being distributed within said polymer . . . , said electrical insulating material being a hard, foam-like material."

Support for new independent claim 36 is found in the specification (e.g., page 2, lines 3-6, 21-24; page 3, lines 3-11, 28-31; page 5, lines 8-11, 17-19, 25-29; page 6, lines 6-20; page 7, line 33 to page 8, line 3; and page 9, lines 13-16)

Regarding claim 36, the prior art of record, alone or in combination, fails to disclose, suggest or feature at least the claim 36 aspect, ". . . introducing, into said particles, gas to set internal gas pressure according to particle size so as to avoid intra-particle partial discharges; and selecting, among other parameters, said pressure to achieve a targeted dielectric strength of said electrical insulating material."

Independent claim 37 finds support in the specification (e.g., page 1, lines 9-13; page 2, lines 21-24; page 3, lines 3-7, 12-20; page 7, lines 1-4; page 8, lines 16-21; page 9, lines 16-18; page 10, lines 1-4; page 11, lines 25-29).

Claim 37 distinguishes patentably over the prior art of record at least by virtue of reciting, “. . . each of said solid and said liquid electrical insulating material comprising: a respective first electrical insulating material; and a respective further material added to the respective first material . . . to prevent voltage drops that occur during operation of said electrical device from reaching correspondingly flashover, or breakdown, voltage of said hybrid electrical insulating material.”

Notably, too, claim 37 as a “combination does . . . require the particulars of the subcombination as claimed for patentability” the subcombination being original claim 1, See MPEP § 806.05(d)(A), and, for at least this reason, is not properly subject to restriction. In addition, the existence of claim 14, as set forth above, invalidates restriction between the hybrid and either the solid or liquid species.

Dependent claims 38 and 39 find support in the specification (e.g., page 6, lines 21-24; page 7, line 33 – page 8, line 3).

Dependent claim 40 finds support in the specification (e.g., page 6, lines 21-24; page 8, lines 22-24).

Dependent claim 41 finds support in the specification (e.g., page 1, lines 14-18; page 9, lines 1-6, and EP 1 176 856 to Negle (or, equivalently US 6,498,303, and in particular col. 3, lines 1-7) which is incorporated within the specification by reference.

Dependent claim 42 finds support in the specification (e.g., page 2, lines 7-17, 28-32; page 3, lines 12-20; page 4, lines 8-10; page 8, lines 16-21; and page 9, lines 1-6).

Listing of New and Amended Claims That Read on the Elected Species

A proper claim listing, fulfilling the provisions of MPEP § 809.02(a), was provided on July 29, 2008 in response to the restriction requirement in the April 29, 2008 Office Action, and pursuant to the earlier election by phone on April 23, 2008.

However, for purposes of clarity, an updated listing appears immediately below.

The April 29, 2008 Office Action classified claim 13 as generic. Claim 13 has since been amended, and Applicant regards claim 13 as still being generic. New claim 41 which depends therefrom is likewise generic.

Claim 24, which is amended, depends from claim 23. Like claim 23, claim 24 is drawn to Species I, "solid electrical insulation," which is the elected species.

New claims 28-36 are drawn to Species I.

Claim 14, which is amended, is drawn to the "hybrid electrical insulation" species. As discussed hereinabove in the section relating to the first art-based ground of rejection, restriction between this species and Species I would not be proper.

New claim 42, which depends from claim 14, is likewise drawn to the "hybrid" species.

New claims 37-40 are drawn to the "hybrid" species.

CONCLUSION


In view of the above, it is respectfully submitted that the present application is in condition for allowance. All issues raised by the Examiner having been addressed, an early and favorable action on the merits is earnestly solicited.

Three additional independent claims are added, the fee being $3 \times \$220.00 = \660.00 . The fee for filing this response within a one-month extension of time is \$130.00. The fee for filing an RCE is \$810.00. A total payment of $\$660.00 + \$130.00 + \$810.00 = \$1,600.00$ accompanies the filing of this response.

The Director is hereby authorized to charge any fee which may be required, or credit any overpayment, to Deposit Account No. 14-1270.

Respectfully submitted,

Dated: March 12, 2010


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